Fisheries and Oceans Canada | Pêches et Océans Canada
Ecosystems and Oceans Science | Sciences des écosystèmes et des océans

National Capital Region

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ADVICE ON CRITERIA FOR THE RELEASE OF REHABILITATED MARINE MAMMALS

Figure 1. Department of Fisheries and Oceans' (DFO) six administrative regions.

Context:

Marine mammal rehabilitation is a controversial subject and receives various levels of support and interest from the different regions in Canada. Under the Marine Mammal Regulations and the Fishery General Regulations, Fisheries and Oceans Canada (DFO) has the authority to license the live capture and release of marine mammals.

DFO Science was requested to provide guidance on criteria that should be evaluated before marine mammals being held in captivity are released back into the environment. The advice from this document will contribute to developing a consistent departmental approach to the release of marine mammals that have been held in captivity, for rehabilitation, or for temporary display.

SUMMARY

- In Canada, the keeping of marine mammals in captivity falls under provincial jurisdiction. However, the federal Department of Fisheries and Oceans Canada (DFO) is responsible for the protection, conservation and management of marine mammals, which includes authorizing capture for captivity and the transfer and release of rehabilitated marine mammals into the wild.
- Marine mammals considered for release should have a reasonable likelihood of surviving in the wild. As such they should be assessed to be in good health, and capable of feeding on their own prior to release.
- Marine mammals considered for release should not pose a risk to the wild population (e.g., carry exotic pathogens).
- The duration of rehabilitation of marine mammals should be kept to a minimum. A prolonged stay may lead to habituation to humans, which could have negative

consequences, either for the animal or for humans, following release. It could also increase the likelihood of disease transmission.

- Marine mammals born in captivity and held for public display should not be released to the wild. Marine mammals are also deemed "non-releasable" if they have been in captivity for more than 2 years.
- Cetacean calves and sea otter pups that are dependent on their mother at capture are considered not releasable. Because of the long dependency period for some otariid species, pups of these species should not be released into the wild unless it is thought that they have a reasonable probability of survival. Seals should be released within 6 months of capture.
- Marine mammals considered for release should be rehabilitated in an appropriate rehabilitation center (RC).
- The RC must not hold in the same facility marine mammals together with other species of marine animals that are not normally found in the region or with non-marine species because of the risk of transmission of new pathogens. If an institution maintains different facilities holding multiple species, strict quarantine measures must be in place to isolate these animals from each other.
- Some pathogens carried by marine mammals can cause disease in humans (zoonoses), and the reverse may also occur (anthroponoses). The chances of pathogen transmission must be minimized by using proper animal handling protocols for marine mammals being considered for release.
- Marine mammals should be released in areas and at a time where conspecifics, ideally those of the same population, are present.
- Post-release monitoring for survival and re-adaptation to the wild is recommended for all rehabilitated marine mammals, especially animals of threatened or endangered species.

INTRODUCTION

In Canada, the keeping of wild animals in captivity falls under provincial jurisdiction. However, the federal Department of Fisheries and Oceans Canada (DFO) has jurisdiction over the authorization of capture for captivity and the transfer and release of rehabilitated marine mammals into Canadian waters under sections 52 and/or 56 of the *Fishery (General) Regulations*. In addition, for species that are listed as endangered or threatened under Annex 1 of the Species at Risk Act, a permit is also needed for their capture (section 74).

Marine mammals are taken into captivity for a variety of reasons, including temporary display or rehabilitation, with the objective that they are to be released at some later date. Ecosystems and Fisheries Management has requested science advice to contribute to the development of guidelines for the release of marine mammals into the wild that have been held in captivity. This document focuses on best practices for release following rehabilitation, rather than standards for rehabilitation. The aim is to ensure that the release of rehabilitated marine mammals does not threaten the integrity of wild populations and the ecosystem in which they live, and is consistent with the concepts of animal welfare. However, these guidelines do not concern the immediate release of marine mammals following capture for health assessment or sampling approved by a research protocol, disentanglement, or emergency assistance during stranding events.

ANALYSIS

The recommendations and release criteria presented in this document were developed using an amalgam of the guidelines applied at other facilities and in other jurisdictions, with the objectives of optimizing the welfare and survival of released individual, protecting wild populations, including those used by Indigenous peoples, ensuring public safety, and preventing attempts at wild animal rehabilitation and release by untrained individuals (see Daoust 2018).

A number of authorities, marine mammal rehabilitation centres (RCs), zoological associations, and non-governmental organizations or specialists provide guidelines, advice, or specific criteria enabling return or re-introduction of animals to the wild. The many commonalities among these various sources demonstrate general agreement on best practice that should inform the Canadian situation.

General Considerations

In general, marine mammals born in captivity, especially cetaceans, should not be released to the wild. Exceptions may be considered after analysis and review if there is a significant conservation need such as supporting recovery activities.

The duration of rehabilitation should be kept to a minimum. Specifically:

- A prolonged stay may lead to habituation to human presence and food provision. This may in turn decrease the animal's self-reliance; it may also decrease its fear of humans, which could lead to encounters with negative consequences, either for the animal or for humans, following its release back into the wild. In addition, captivity may increase the potential for disease transmission.
- The maximum recommended duration of rehabilitation of marine mammals is influenced by the species involved. Most protocols consider that seals should be released within 6 months of capture, unless consultation between animal care personnel and the attending veterinarian suggests otherwise. In contrast, it may be months to a year before a cetacean can be released; cetacean calves and sea otter pups recovered without their mothers are not considered releasable, although sea otter pups raised by surrogate otter mothers may be releasable.
- Cetaceans and pinnipeds are deemed "non-releasable" if they have been in captivity for more than 2 years. Although there are few scientific data that indicate an upper limit for a period of captivity prior to release, this 2-year period appears to be a reasonable limit for most circumstances.

Specific Criteria for Release

Following the general considerations above, the release of marine mammals can be divided into four categories:

1. The marine mammal was rehabilitated in an appropriate rehabilitation Centre (RC)
2. The marine mammal is healthy
3. The release does not pose serious risks to the marine mammal's welfare
4. The marine mammal does not pose risks to wild populations or their environment or to public safety

Individual marine mammals which do not meet these criteria may be categorized as "conditionally releasable" if the requirements for release currently are not met, but may be met

in the future, provided that time spent in captivity will not be excessive, or they are categorized as "non-releasable", in which case euthanasia or permanent captivity in a zoological park, aquarium or research facility is necessary.

1. The marine mammal was rehabilitated in an appropriate RC

- Marine mammals slated for release should be rehabilitated in an appropriate RC. Extensive details on operational requirements whereby a RC can be deemed to be appropriate are clearly outlined in the "CCAC Guidelines on: the care and use of marine mammals" (CCAC 2014), which pertains to all marine mammals held in captivity, whether for public display, scientific research, or rehabilitation. These guidelines provide principles of best practice and must be adhered to by all RCs. This implies up-to-date standard operating procedures, good clinical practices, health and safety protocols, appropriate training for all personnel, and access to a licensed veterinarian with expertise in marine mammal medicine.
- The RC as an institution may operate different facilities, defined as self-contained units that can allow complete isolation within the institution. However, the RC must not hold in the same facility marine mammals together with other species of marine animals that are not normally found in the region or with non-marine species because of the risk of transmission of new pathogens. If an institution maintains different facilities holding multiple species, strict quarantine measures must be in place to isolate these animals from each other.
- To avoid the possibility of habituation to humans by the animals intended for release, facilities holding marine mammals in a RC should adopt and enforce the necessary protocols to limit interaction with humans in exhibit design, handling, feeding, public viewing, and research.
- Some pathogens carried by marine mammals can cause disease in humans (zoonoses), and the reverse may also occur (anthroponoses). People working in a RC must minimize the chances of any pathogen transmission by using proper protective equipment and following proper animal handling protocols. They should be adequately immunized against common communicable diseases, in the remote possibility that viruses causing these diseases could be transmitted to individual animals of other species. Anyone with a current infectious illness, particularly influenza, or having recently been in contact with someone suffering from a communicable disease should refrain from working with marine mammals.
- Marine mammals dying or euthanized in the RC should have a thorough necropsy by a qualified veterinary pathologist, preferably with marine mammal experience, especially if an infectious disease that may be transmitted to release candidates is suspected.
- At year end, the RC must report to the proper DFO authorities the species, numbers and disposition of all released marine mammals, as well as results from post-release monitoring programs and post-mortem examinations.

2. The marine mammal is healthy

The attending veterinarian, in consultation with animal care personnel, is responsible for preparing the marine mammal's health report which should be provided in writing to the proper DFO authorities, unless a blanket authorization to handle rehabilitation cases of a standard nature has been obtained (for example, seal pups, which represent the majority of marine mammals released from RCs in Canada). The following should be considered for all potential marine mammal release candidates:

- A medical history of the marine mammal is available and should include any indication that the animal has previously been rehabilitated and released, health assessment, treatment, husbandry while in captivity, and time in rehabilitation.
- The marine mammal was not originally presented to the RC with clinical signs suggestive of a contagious infectious disease that could represent a risk to free-living wildlife populations.
- The marine mammal is in good body condition, i.e., body mass at age and sex falls within the species' normal range.
- A pre-release medical health assessment carried out within 2 weeks of expected release, has not revealed abnormalities that could compromise the marine mammal candidate's survival or an infectious disease that could represent a risk to free-living wildlife. A hands-on physical exam should be performed within 72 hours prior to release. Individual RCs are encouraged to establish normal ranges of values of health parameters for local populations of marine mammals. The proper DFO authorities may request additional testing based on the threat of current or emerging infectious diseases specific to the region.
- If the marine mammal has been administered drugs during rehabilitation, the withdrawal time period for these drugs must be determined and should be used to assess release date. However, maintaining the candidate in captivity until an appropriate withdrawal time for all drugs that it has received has passed may not be practical or desirable. In these cases it is important to identify the marine mammal prior to its release as a potential warning to hunters that it may carry drug residues. With the possible exception of sedatives, marine mammals to be released should be held for a minimum period of 2 weeks following drug administration to ensure that drug residues do not enter the food chain.
- The RC should maintain medical history reports on individual marine mammals for a minimum of 5 years post-release.

3. The release does not pose serious risks to the candidate's welfare

This criterion refers to the candidate's ability to survive in the wild. Rehabilitated marine mammals should demonstrate adequate foraging and social skills prior to their release. However, adequate assessment of these foraging and social skills may be limited substantially by the confines of the temporary captive environment in which the marine mammals find themselves. To achieve an optimal evaluation of these skills, it is therefore important to involve different sets of expertise, including the attending veterinarian, the animal care personnel, and a biologist with species-specific knowledge of behaviour and ecology. Such evaluation is especially pertinent since behaviour and health often overlap and since abnormal behaviour may indicate an underlying disease process. More specifically:

- If recently born, the marine mammal must be weaned and nutritionally independent.
- Cetacean calves that strand without their mother and are nutritionally dependent when admitted to the RC are not releasable.
- In the case of a cetacean mother-calf pair, the calf may be released with its mother if both are deemed releasable based on all other criteria.
- Phocid and otariid pups should be held in rehabilitation until they reach their species-specific weaning age and appropriate body mass, unless the mother and her pup stranded together, were rehabilitated, and are released together.

- Among phocid species in general, there does not appear to be a concern associated with releasing pups if they are healthy and of appropriate body mass.
- Otariid pups generally have a prolonged nursing period (more than 1 year in some individuals) when they develop their swimming and foraging skills. Demonstration of these skills prior to release is essential in these animals. It may therefore not be possible to release otariid pups of some species.
- Walrus that strand as calves are not releasable because of the long period of maternal care (2 years old at weaning) and very social nature of this species.
- Sea otter pups are generally dependent on their mother for the first 6 months of life and are not considered releasable unless they are reared by surrogate otter mothers.
- The marine mammal must not demonstrate evidence of habituation or attraction to humans which otherwise could lead to encounters with negative consequences, either for the animal or for humans, following its release. For marine mammals in need of longer-term rehabilitation, behavioural conditioning may be required to reduce stress during medical and husbandry procedures, but this conditioning must be used for the shortest time necessary and must be eliminated prior to release.

4. The release candidate does not pose risks to wild populations or their environment, or to public safety

The primary risk to wild populations potentially associated with the release of a rehabilitated marine mammal is the introduction of pathogens, including some with zoonotic potential, that were acquired or modified during rehabilitation. For these reasons, rehabilitators should consider the value of attempting to treat and release an animal brought to a RC with suspicion of an underlying infectious disease.

There is a long and growing list of potential pathogens found in marine mammals. Therefore, it is not possible or practical to monitor for all pathogens in an individual animal that is due for release. Nonetheless, the attending veterinarian is encouraged to use the full spectrum of diagnostic tools available to assess the health of animals coming to, or leaving, the RC. Monitoring and surveillance of the health of wild populations in the region served by the RC can help identify the composition of the normal community of microorganisms and the pathogens that are likely to have undesirable impacts at the release site.

Criteria for selection of release site

Once a rehabilitated marine mammal is ready for release, an understanding of species' biology must inform the selection of a suitable site and time for its release, to maximize the likelihood of its survival. Notwithstanding the specific criteria that follow, approval of the site and time of release by the proper DFO authorities is required.

- The animal should be released in areas where conspecifics, ideally those of the same population, are present at that particular time of year. It should be chosen to minimize the stress imposed on the animal by the length or difficulty of transportation to the site and the level of human activity at that site.
- Although in theory an animal from a widely ranging species could be released anywhere within its normal range after due consideration to the time of year and how this influences the distribution of conspecifics, special consideration should be given for extra-limital animals, e.g., as occurs with harp seals and hooded seals. The feasibility of returning these animals to their normal range for release needs to be examined and balanced against the

risk of introducing new pathogens to conspecifics. Marine mammals rescued and rehabilitated from unusual sites for the species should be evaluated for release by an independent expert group on a case-by-case basis.

Post-release monitoring

To the extent possible, post-release monitoring should be done for all rehabilitated marine mammals, especially animals of threatened or endangered species. The release plan should also include a contingency plan to recapture the animal if it appears unable to readjust to freedom. The first 1-2 months after release represent the most likely period during which problems of re-adaptation to the wild may become evident.

All released animals found dead should be subjected to necropsy by a qualified veterinary pathologist and results submitted to the proper DFO authorities.

Additional considerations

Considering the costs and efforts involved in rehabilitation, the occasion of release events should be used to raise awareness about human-induced threats to the species, while reminding the public that rehabilitation is not generally of direct benefit from a conservation perspective. Engaging the public in monitoring efforts targeting released animals may also stimulate people's interest in marine mammal conservation in addition to assisting the post-monitoring program.

Baseline health information should be obtained regularly in order to monitor the health of wild populations, detect emerging diseases, and provide insights into whether diseases or genetic anomalies are being spread or propagated by rehabilitation activities. The scanning wildlife health surveillance program provided by the Canadian Wildlife Health Cooperative (www.cwhc-rcsf.ca) is one important service that can be accessed to contribute to this goal.

Sources of Uncertainty

There is inadequate knowledge of most marine mammal diseases and their prevalence in wild populations in Canada, and new diseases may be discovered in the future. There remains a risk of introduction of a pathogen that was acquired or modified during rehabilitation to wild populations by the release of a rehabilitated marine mammal. This is in part due to this lack of knowledge concerning the entire range of disease potential, the absence of tests, or the prohibitive costs associated with screening for the entire range of pathogens. The transfer of pathogens from a rehabilitated animal to marine mammals in the wild, particularly populations considered to be of conservation concern, could have a negative impact on these populations and their recovery.

There are still few studies evaluating the survival and re-adaptation of rehabilitated marine mammals into the wild. Thus, there remains uncertainty about how release criteria contribute to the successful re-adaptation of individuals. Further post-release monitoring studies of rehabilitated marine mammals are needed to better evaluate existing criteria and to promote their improvement.

CONCLUSIONS AND ADVICE

Guidelines or procedures at other marine mammal holding facilities, in other jurisdictions, or as recommended by international organizations were examined to formulate release criteria in light of the Canadian situation. Recommendations on criteria for the release of rehabilitated marine mammals are developed with the objectives of optimizing the welfare and survival of released

individual, protecting wild populations, including those used by Indigenous peoples, ensuring public safety, and preventing attempts at wild animal rehabilitation and release by untrained individuals. Suggested criteria are provided in Table 1. To be considered eligible for release, candidates should be rehabilitated in an appropriate RC. Release of marine mammals born in captivity and of captive marine mammals held for public display is not recommended. Candidates for release should be healthy, not pose a threat to wild populations or their environment or to public safety, and the release should not pose a serious risk to the candidate's survival. Rehabilitation programs should include a post-release monitoring plan to determine as best as possible the outcomes of rehabilitation efforts.

SOURCES OF INFORMATION

This Science Advisory Report is from the April 26 and June 27, 2017 meeting on Standards for the Release of Captive Marine Mammals into the Wild. Additional publications from this meeting will be posted on the Fisheries and Oceans Canada (DFO) Science Advisory Schedule as they become available.

CCAC. 2014. CCAC guidelines on: the care and use of marine mammals. Ottawa, ON.

Daoust, P-Y. 2018. Criteria for release of rehabilitated marine mammals. DFO Can. Sci. Advis. Sec. Res. Doc. 2018/030. iii + 15 p.

APPENDIX

Table 1. Summary of criteria for release of marine mammals from rehabilitation centres (RCs)

Topic	Summary
General	It is not recommended to release animals born in captivity or held for public display for extended periods of time
	The duration of rehabilitation should be kept to a minimum
	A detailed health report is required prior to release
Rehabilitation in an appropriate RC	The RC must hold the required permits (federal, provincial/territorial, and/or municipal)
	The RC must have access to a licensed veterinarian with expertise in marine mammal medicine
	The RC should have an animal care and ethics committee operating within CCAC (2014) guidelines
	Marine mammals must not be held in the same facility as those holding non-marine species or marine animals not normally found in the region
	Necessary protocols should be in place to avoid habituation of the animals to humans
	Staff and volunteers must minimize chances of pathogen transmission among animals and between humans and animals
	Animals dying or euthanized in a RC should be necropsied
	The RC must provide to the proper DFO authorities an annual report on animals that have been handled
The release candidate is healthy	A medical history of the animal is available
	The animal was not presented to the RC with clinical signs suggestive of a contagious infectious disease that could represent a risk to free-living wildlife populations
	The animal is in good body condition
	A medical health assessment (complete blood cell count and chemistry profile) within 2 weeks prior to release shows no abnormality
	With the possible exception of sedatives, a minimum period of 2 weeks following drug administration should elapse before release
	The medical history of the animal should be maintained for at least 5 years post-release
No serious risk to the candidate's welfare	The animal should demonstrate adequate foraging and social skills prior to release
	The animal must not show evidence of habituation or attraction to humans

Topic	Summary
No risk posed to wild populations, environment, or public safety	Rehabilitators should question the value of attempting to treat and release an animal brought to a RC with suspicion of an underlying infectious disease

Table 2. Summary of criteria for release of marine mammals from RCs regarding release site, post-release monitoring and other considerations.

Topic	Summary
Release site	Approval of the site and time of release by the proper DFO authorities is required
	The animal should be released in an area where conspecifics are present at that time of year
	Releasing more than one individual of the same species at the same time may be beneficial
	The site should be appropriate for the normal seasonal time of distribution of the species and the age and sex classes
	There should be minimum stress imposed on the animal by the length or difficulty of transportation
	The site should be in a quiet area with minimal human activity
	The area must present a relatively healthy ecosystem (e.g., no oil spill or algal bloom)
Post-release monitoring	A post-release identification and monitoring plan is required
	All released animals should have means of being individually identifiable over a long term
	The identification methods must be coordinated through proper DFO authorities with those used in other RCs or by researchers in the area
	Animal identification is particularly important in regions where some of the animals may be hunted for food, as it may warn hunters that the animals so identified may carry drug residues
	The released animal should be monitored during the first 1-2 months following release as this is the most critical period of re-adaptation
	All released animals found dead should be necropsied
Other considerations	Release events should be used to raise awareness about human-induced threats to marine mammals, such as through collaboration with the media

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